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STORAGE

The Public Health Journal

The Official Organ of the Canadian Public Health Association

The Contribution of Health Insurance to Improvement of the Public Health
By Miles Menander Dawson, F.I.A., F.A.S.

Health Insurance, the Practice of Medicine, and Public Health
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The Influence of Mental Defectives on the Public Health

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A Canadian Medical Week in Hamilton

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Editorial

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No. 12

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The Public Health Journal

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The Contribution of Health Insurance to Improvement of the Public Health

By Miles Menander Dawson, F.I.A., F.A.S.
Consulting Actuary, New York City

IT might very naturally be the idea that an actuary, to whom such a subject as this is assigned, would come forward with a big sheaf of statistics, showing, among other things, that sickness has diminished both in the rate of cases to numbers exposed and in average duration per case, and that mortality rates has diminished and the average duration of life increased, in the countries in which health insurance has been introduced, and very particularly among the persons insured.

Some of these things have happened, more or less coincidently with health insurance being supplied, such as the increase of longevity of men by over ten years; and of women by over twelve years, in Germany, in a period of 30 years, viz., 1870 to 1900, during which health (and other forms of social) insurance was introduced there; but, in the main, statistics are either wanting or inconclusive, because so many other things are involved and such counter-currents of forces at work.

Thus, for instance, after health insurance is introduced, there is nearly always a marked increase for a number of years in the rate of sicknesses to lives exposed, due to closer reporting, as the fact that compensation may be had is more widely appreciated; due to employees' quitting work to obtain treatment who would not have done so, though ill, if not insured; and due to simulation in some degree in order to get benefits. Accompanying this, there may also be, after a time, an increase in average duration of sickness, due to employees recovering more fully, when insured, before going back to work; due to insistence of physicians, or even of employees, that employees who are yet weak shall not return to work; due to the greater pressure of industry as a country becomes more and more industrial; and due, in some part, to more successful malingering in order to secure benefits.

These things operate to offset, in the statistics, the advantages which flow from health insurance, of securing prompter and fuller medical attention for the sick, and of ascertaining more fully, what causes of disability and death are at work in the community, and therefore learning better how to cope with them. Consequently, higher, instead of lower, rates of (a) cases of sickness, (b) average duration per sickness, or (c) average annual loss of time by sickness per member may be encountered year after year for some years, in sickness insurance statistics, notwithstanding that a very real improvement is taking place. Such improvement ought to, and sometimes does,

show itself first in a gradual reduction of the average duration per illness, due to prompter and fuller medical care, and last of all in fewer cases of sickness per 1,000 exposed for one year, because health insurance so strongly encourages both reporting slight ailments, and also at least taking treatment for them, if not quitting work.

Ultimately, however, an improvement should commence in all three regards, i.e., proportion of sicknesses, their average duration and average annual duration of sickness per insured person, unless some condition, like increased industrial pressure, is more than offsetting all the gains.

Improvement in longevity is, in the nature of things, likely to come first. Prompt medical attention may result in a larger loss of time employed, on the average, because the prudent physician orders his patient to quit work if he deems that essential; but it ought to result in preventing many deaths, and thus in lengthening lives. Physicians are not consulted to save a day or so, but to save life.

There is evidence that, co-operating with the other forces at work, supplementing them and spurring them on, health insurance has accomplished much in this regard; and certainly much may reasonably be expected from it. To assume the contrary would be to concede that more and prompter medical service would not extend life and reduce the ravages of disease, even when such enlarged service was aided in its work by the peace of mind which comes from the knowledge of the disabled that their income has not been utterly cut off—the psychological benefit of which assurance can hardly be overestimated.

There is one fact which stands out in the statistics of countries which have longest had health insurance, viz., the increasingly vigorous condition of those who are subject to military service compulsion, as compared not only with the condition of such in other nations—such as the United States, as our selective draft examinations reveal—which have not had the benefit of health insurance. The statistics of the countries, that have longest enjoyed the benefits of health insurance, show a steadily progressive improvement, also in this regard. This must be due in large part to such insurance, which has protected the families of workingmen in these countries, has taught sanitation, hygiene, care of mother and children and provided promptly and freely the necessary medical help and medicines in times of sickness.

The things, however, which it will pay those here assembled to discuss how the medical profession can best serve mankind, to consider, is, in what manner, in case health insurance were instituted in the Dominion, physicians could utilize it so as to assist them in preventing preventable sickness and in dealing with unpreventable sickness promptly and effectively, with the result that men should average to live longer and average to be in a more vigorous and industrially effective condition while living. If you can see your way clearly how health insurance can aid you to accomplish these things, you will all, I am sure, feel that it offers opportunities that you will welcome. Therefore, to the task of elucidating the ways in which it should afford you these enlarged opportunities, I address myself.

The present situation of workingmen and their families, when sickness comes to the breadwinner, is, in the United States and Canada, about as follows:

1. If the sickness is slight and does not absolutely incapacitate him, he nearly always keeps at his work and in such case does not consult a physician, unless alarmed about himself. If he feels the need of medicine, he either uses a drug of which he knows by previous experience, or which someone recommends, or he buys a patent medicine or, if in a city where dispensaries are open, he may obtain treatment free or for a merely nominal charge.

2. If the sickness incapacitates him, he loses his time—that is, is without income while so incapacitated—and must trench upon his savings, if any, or secure food and other necessaries for himself and family, as well as medical attendance and medicines, on credit, or apply for charity, either public or private, to furnish one or all of these. The physician is, of course,

usually called in at this time—days, perhaps weeks, months or even years after he ought to have been consulted—and begins his work under conditions which may be, and often are, most deplorable and most unfavorable for the best results —that is, for restoring the patient promptly to full health and vigor.

Among the conditions with which the physician may be, and often is, compelled to cope at such a time, are these: The disease in an advanced, perhaps chronic stage; a man, perhaps a family, deprived of income; rapidly diminishing savings, if there were any, or rapidly accumulating debt; money needed for every ordinary need and for the extraordinary needs of medical service and medicines; great distress of mind on the part both of the patient and of those about him, and often almost hopeless depression; an exaggeration of this condition, resulting in its being necessary to make requisition upon public or private charities, which relieve materially these conditions, but almost inevitably leave the sting of some loss of self-respect and may wholly pauperize.

Certainly, these—which are successive stages, fortunately not all of them always, or even usually, experienced—are not pleasant things to contemplate, or in the least desirable in order that you may do your best work.

In contrast with such, the following are the conditions that can be realized, measurably at least, under health insurance:

1. If the sickness is slight, there is prompt medical attention, the workingman not being dissuaded therefrom by (a) the physician's fee, (b) the cost of medicines or (c) fear of being ordered to quit work; for the expense is provided for and there will be a cash allowance if he has to lay off.

Self-prescribing, patent medicines and dispensary abuses, in consequence, are out of it, and, instead of neglect until the disorder has become serious or even chronic, there is prompt treatment in virtually all cases.

2. If the sickness notwithstanding incapacitates, the loss of wages is in part compensated (i.e. up to 50 per cent. or even 66 2/3 per cent.) and all the unusual expenses growing out of the sickness, are taken care of, in addition. That is, food and other necessaries for the workingman and his family are provided by the cash allowance, thus enabling them to avoid exhausting their savings or going into debt or applying for charity. The physician, who may have been watching the case and treating it for a long time before in the hope of being able to fend off the incapacitation, is promptly summoned; indeed, more often than not, he has himself ordered the man to quit work considerably in advance of the time when utter inability to work would compel it, because the physician's idea of that matter is to have the best conditions for his patient's recovery and he wants that which is safe, not that which means a little more workingtime now, and then prostration or death.

Compared with possible and not infrequent unfavorable conditions nowadays experienced, such as have been outlined in this paper, the physician now has these advantages: The disease, when he begins his work, is in an early stage; the man and the family are not suffering for necessaries; their savings need not be trenched upon, nor debts be piled up against them; money for ordinary needs is at hand, and the extraordinary demands because of the sickness are fully met, as a matter of right; neither the patient nor those about him have added to their unavoidable anxiety about the sickness, distress about finances or depression over a hopeless economic condition; there is no occasion whatever for calling upon public or private charities, no loss of self-respect, no pauperization.

When there is mentioned also the circumstances that the physician has no uncertainty about his compensation, and need not, when called, ask himself whether or not this will prove to be a charity call—although, not impossibly, other calls, which mean income for him, must be neglected to attend at once to this urgent call and although, also, the physician may be in sore need of that income and not warranted in taking chances about it—it is readily seen that, from his standpoint, as well as the patient's, the

situation has been rendered much more favorable to rendering good service.

So much as regards the treatment of the insured workingman. It cannot be otherwise than clear that such will have better chances of escaping long, depleting illness and premature death.

But health insurance, in the form put forward by the committee* of which I am a member—a form modelled upon the best features in use in other countries—would also provide medical attendance and medicines for members of the families of insured workingmen and working-women. This would assure, in their cases, as well, the cessation, or great diminution, of self-prescribing, use of patent medicines and abuse of dispensaries and the substitution of prompt medical treatment for old people, (dependent parents or grandparents), wives and, above all, mothers and children—a wide utilization of your skill in a field which is already your largest, thanks to the unselfish love of men for their families, but where many and many a time you are, on the ground of economy, not summoned until too late. Birth, safer for mother and for child—babyhood, better guarded—diseases of childhood caught at their very inception—these are but a few of the advantages which such a system affords.

The gains would not stop even there. There would be advantages as regards prevention, first in connection with assured persons and their families directly as a result of their being insured this prompt attention, and then, in connection with the whole community, both by the extension of sanitary and hygienic methods, found efficient in this work, to all other families and also by checking the spread of communicable diseases to a degree not possible otherwise.

Yet further advantages would accrue to all through the collection of reliable information concerning disease, loss of time through disability, impairment of efficiency, death-rates in different occupations and at the various ages, and the like—facts about which we know in the United States little or nothing. There would also be a greatly enlarged field for clinical study and experience, owing to the much wider use of dispensaries, (not free, however), hospitals and sanitariums which such a system brings in its train; much of the superiority of the clinics in the countries where health insurance has been longest in use, is unquestionably due to it. Aside from better quality, however, there would be a much bigger advantage in the greatly enlarged number of such conveniences for medical research and surgical experience under favorable auspices and their being scattered through the country at large, instead of confined to a few metropolitan cities.

Precautions being taken against abuse of it, the machinery of sickness insurance could also be availed of to aid the public health authorities. For the best management of health insurance, it is desirable to separate completely two functions of the physician, viz., passing upon the right to benefit and treatment, confiding the former to physicians employed on salary to examine and inspect and the latter to physicians employed to treat the sick. The latter, who, in order to do their best work, possess the full confidence of, and be in confidential relations with, their patients, must avoid doing odious things like refusing benefits or reporting to health departments (except as to matters which all physicians report upon), should not be made officers or quasi-officers of such departments. The former, however, employed on salary as examiners, inspectors and supervisors, are free from any such embarrassment. They have no such confidential relations, it is their business to refuse benefits if in their opinion the insured are not entitled and they can, with entire propriety, report the conditions which they find and, to that extent, may act as officers or quasi-officers of the health department, so far as reporting goes and perhaps in some other regards.

That this can safely be pushed so far as to warrant their also acting for the enforcement of rules or orders, is doubtful, however. If this would make them offensive in many cases or cause them to become domineering supervisors of treatment, it would do so much harm that the little good it could do (which would ap-

*The Committee on Social Insurance of the American Association for Labor Legislation.

parently be merely to save whatever, if anything, additional it would cost to enforce such rules and orders through others), by causing the insured and their families and perhaps their physicians as well, to look at the whole thing unfavorably.

Certainly nothing so extreme as to turn over to the health department the entire direction of health insurance by making these physicians, charged with examining, inspecting and supervision, its agents only and subject in all regards to its control, would be tolerable, although such has, however, been suggested. These physicians have duties to the sickness funds which render it absolutely necessary that they be subject to discharge by those interested in the funds and representing the employers and employees who contribute to them; and, while their reports upon disabling sickness are the chief basis for determining the right to benefit, they cannot safely be made the sole and final judges in that matter. Similarly, as regards medical treatment, their supervision is tolerable, only when there is a ready means of going over their heads, in case they play the part of martinets, to practical men, interested in the persons to be treated and in the results. To transmute this into a bureaucracy, tyrannically dictating both when benefits should be allowed and when and how treatment should be given, by means of agents of some control bureau, and accountable to it only, would be to change a normally-operating human agency for relieving distress into a huge mechanism, operating more or less perfunctorily and without regard for individual preferences or even requirements.

The committee, of which I am a member, has considered such a proposal most carefully, but has not seen how it could fail to work badly, from the standpoints both of health insurance and of public health.

The much prompter and more certain report to the health departments which these examining and inspecting physicians of sickness funds could, and would, make as special officers of such departments, would undoubtedly enable very much more effective work to be done by those valuable agencies for preserving the lives and health of the people; and this can be secured, through health insurance, virtually without additional outlay or at a minimum of expense.

Health Insurance, the Practice of Medicine and Public Health

By T. M. Rubinow, Ph.D.
New York

I CONFESS that I come to this, my first public appearance as an advocate for Social Health Insurance outside of the domain of the United States, with certain trepidation. The advocacy of any social program must necessarily be based upon the existence of need, and that presupposes a knowledge of local conditions which I do not claim to possess in regard to the Dominion of Canada. Moreover, now more than ever before, one is forced to think of Canada as an integral part of the British Union, and it may appear to be a presumption on the part of any American (if I may be permitted to claim the term) to pretend to teach the British anything about health insurance, which is only being advocated in the United States, and has been in operation in Great Britain for more than six years. I may mention in justification however, that as the history of compensation has proven, Canadian social legislation tends to conform more with American than British standards; even if the former go further than the latter; that because of the admitted shortcomings of the British health insurance system, Canada, more even than the United States, needs a larger familiarity with the continental systems, and that as far as difference in local conditions is concerned, the variation between our east and west, our north and south, are at least as great as those between Canadian and the United States.

Social insurance in general, and social health insurance, has long ceased being a local movement, and cannot be explained by any specific local conditions. It has developed in countries of the most diverse political and social conditions and racial and national compositions. Practically no modern industrial country is without a considerable structure of social insurance legislation, and most countries on both sides of the Great Divide which has separated civilized humanity into two warring camps, have already accepted the method of cumpulsory health insurance as one of the modern means of combating destitution and pauperism. The great underlying cause is modern industrial organization, uniform in all civilized countries, notwithstanding many minor local variations, modern industrial organization which has turned the majority of the people into wageworkers who depend upon the sweat of their brow to earn their daily bread, and therefore are only in a position to earn it when in possession of non-impaired physical and mental powers.

No country has so long and so persistently held to the old Manchester ideal of individual responsibility as have Great Britain and the United States. But within the last decade the United Kingdom has with amazing rapidity developed a nearly complete structure of social insurance legislation, forging ahead even of Germany, though handicapped by a delay of nearly three decades. And within the same decade the United States, very recently the country of rampant individualism par excellence, the people which identified individualism with Americanism, has shown signs of progress which promises to be equally rapid.

With the phenomenal progress of workmen's compensation—another name for social accident insurance—from 1911 to 1917—a progress which resulted in actual legislation in 41 out of 52 jurisdictions of the United States—many of you are undoubtedly familiar. But with the very last few months the movement for social justice through legislation has been quietly making progress notwithstanding all the difficulties which a war atmosphere must create in every path toward social reconstruction. I am referring to the growing movement for social health insurance.

It is less than two years since a voluntary committee of students of social in-

surance—the Social Insurance Committee of the American Association for Labor Legislation, after two years of quiet work has issued its first draft of a health insurance act and the propaganda began in earnest. Because the date of the first public appeal can be so definitely traced to the action of one committee, the charge has often been made that the whole movement is artificial, and to be explained by the zeal of a half a dozen "social uplifters." The amazing success of the propaganda is a sufficient answer to this charge. In 1916 two states has had commissions at work on the problem of health insurance, (Massachusetts and California) and both have brought in reports favorable to the general principle, though there is inevitably considerable difference of opinion as to the details. The governors of both these states have enthusiastically endorsed the movement in their annual message. And during the current year, notwithstanding the war excitement, both states have reappointed their commissions, and six more states (Illinois, Ohio, Pennsylvania, Wisconsin, New Jersey and Connecticut) have commissions at work. Dozens of voluntary committees have been organized throughout the country for the study of the problem, and most of them frankly for the advocacy of the measure. The current of literature is growing by leaps and bounds, and perhaps it is no less significant that the opposition to health insurance through strong, well-financed organizations of interested parties, has become very formidable indeed. In short, the present stage of health insurance movement runs on parallel lines with the compensation movement eight or nine years ago, except that it is very much more energetic. In an enquete made among American students of social science and practical social workers, by the California Social Insurance Commission last year—675 replies were received—87% of these went on record as in favor of the general program of social insurance, 9% were not committal, and only 4% opposed. Of those in favor of social insurance 46% favored health insurance as their first choice, and 20% as their second choice, while 23% failed to indicate their preference. The preponderance of opinion was therefore in favor of health insurance as the next step in social insurance legislation.

So much for a brief review of progress accomplished. What is this social measure which succeeded in marshalling so much enthusiastic support in a very brief period of less than two years?

Health insurance is not a novel idea or some strange, mysterious plan. In various forms, co-operative, commercial, industrial, it has developed to some extent in the United States and probably in Canada, as well. Health insurance in a final analysis means a system of indemnification for losses and expenses connected with everyday sickness—the losses due to disability caused by sickness, the expenses accruing from the efforts to regain health. To argue the desirability of some system of insurance to cover such losses would appear to be as useless as to argue for desirability of fire or life insurance. It is unnecessary to spend time and energy in an effort to prove the obvious.

Social health insurance, as it is being discussed to-day in the United States, adds a few very definite conceptions to the general idea of insurance. In the language of the first of the ten standards, defined by the American Association for Labor Legislation, "in order to be effective, health insurance should be compulsory, on the basis of joint contributions of employers, employee, and the state."

In this brief phrase the essential characteristics of social health insurance are indicated, the features which are common to almost all the important social health insurance systems. Perhaps the word "noncommercial" should be added to complete the list of the essential attributes of the proposed reform. Everything else, no matter how important, is administrative technique and detail.

I wish it were possible to assume in this or any other audience some agreement as to these basic principles. Then my entire time could be devoted to the discussion of the problems of particular concern to the medical profession. Unfortunately no such agreement as to the fundamentals as yet exists in the profession, at least in the United States. It is both sad and strange that it should be so.

I am not asking for a blind and non-critical acceptance of the numerous and complicated provisions of the Standard Bill. But what is there in the fundamental principles of social health insurance that physicians can reasonably refuse to admit?

1. It is stated that a good deal of poverty is due to the loss of earning capacity through sickness.

2. That in its turn, this poverty resulting from sickness creates conditions unfavorable to recovery.

3. That a good share of sickness is due to poverty.

4. That the expenses connected with serious illness are often too heavy for the ordinary wageworker to carry.

5. That a large proportion of our population is therefore receiving less expert medical aid than they ought to have.

6. That the working class is pauperized by the necessity of getting his medical aid through charitable institutions.

7. That a system of compulsory health insurance will provide a large proportion of our population with both financial aid and the necessary medical services.

To oppose the proposed reform on general principles seems therefore to deny that the practice of medicine is productive of any social good.

Unfortunately, in the numerous discussions of health insurance before medical organizations, not only specific details, but the whole basis of social insurance was attacked, sometimes by representatives of various interests to be affected by the law, and therefore the entire controversy cannot be kept out of the medical fraternity.

Within the limited time at my disposal I shall try to answer some of the most important and popular objections raised until now against health insurance. It seems to me incontrovertible that a prima facie case has been made. A system which relieves poverty in sickness and sickness in poverty in itself cannot be socially undesirable.

If there are any specific objections, what are they?

So many have been raised, that it is possible to group and classify and label them.

At least these types of objections may be recognized:

Legal—It is unconstitutional.

Political—It is opposed to traditions of American political life. It is un-American, paternalistic, socialistic, undemocratic and so on and so forth.

Economic—It is unnecessary. It is unjustified by American economic conditions. It is too costly, we cannot afford it.

Psychologic—It will breed malingery and fraud.

Social—It will break down the spirit of personal responsibility. It attacks the problem from a wrong angle. The necessary thing is prevention and not indemnity.

These are all arguments of a public character at least in form. In addition, there are many of a private, particular nature. Health insurance is opposed by employers, by insurance companies, by physicians because it is claimed to work harm to the employer or to the insurance company or to the physician. And finally, a great multiplicity of arguments have been brought forth against this or that particular provision of the Standard Bill, as if they were arguments against health insurance in itself.

We need not at this time go into the detailed criticisms of the bill. There will be time to do this when the Standard Bill or some other bill is introduced in your legislatures, and becomes a subject for possible legislation. Nor do I see any reason why the medical profession should take any deep concern in the possible effects of health insurance upon employing capital or insurance capital. The class or group interest of the medical profession itself does require consideration here. But before we approach this group problem, the general social objections to health insurance must at least be briefly considered.

Under a great variety of different names the political argument looms up at every discussion. "Health insurance is un-American, it is germanic, in its origin, and therefore utterly unapplicable to our political system." Perhaps it may be just as well to plead guilty to the charge

that it is un-American. What is "American" and what is "Un-American?" Since social health insurance does not yet exist in the United States it is "eo ipso" un-American. One may perhaps condone a certain sensitiveness to this argument on the part of an emigrant from Europe. Twenty-five years ago he was un-American, he would resent any charges of un-Americanism now. The palpable difference being that 25 years ago he was in Russia, and is in America now. Compensation was un-American quite recently, until introduced, and minimum wage legislation and hundreds of other social institutions. On the other hand, slavery was American until abolished, and child labor was American in the south, long after it had become un-American in the north; and it required a drastic federal act at least to reduce this American institution. Seriously speaking, opposition to health insurance on no other grounds than that it is un-American, is begging the entire question. The Germanic origin of social insurance did not prevent Lloyd George from introducing it in Great Britain six years ago. Let us hope that we have sufficiently advanced ahead of our quadruped ancestors that we have learned to imitate with discrimination.

The economic argument in opposition has been flaunted before the physicians. What is its force? On one hand, it is unnecessary, there is no such poverty and destitution as made health insurance necessary in Germany and England.

And on the other hand—we cannot afford health insurance. It represents too heavy a burden for industry, for the state. There is, you will observe, some difficulty in combining both these economic arguments into one harmonious point of view. On one hand, we are so much richer than Europe that we do not need health insurance, and on the other, so much poorer than Europe that we cannot afford it. The only possible way of combining these two arguments without straining logic too much, is to assume that our wageworkers are too rich to need it, while our industry, our capital and our government, are too poor to afford it. And what with the rising cost of living on one hand, and the billions of war profits on the other, and the United States Government becoming the banker of the world, and spending ten billion for one year of war, it is somewhat difficult to accept that point of view of the economic situation in the United States.

Various estimates of the annual cost of health insurance for the entire United States fluctuate roughly between half a billion and one billion. A substantial part (40% or 50%) of this is to be contributed by the insured themselves, of whom there would be some 30,000,000. The remainder would come in some proportion from industry and the state. During the last year or two our ideas of what is financially possible, have undergone considerable change, and I wonder how far an annual outlay of 100 or 200 million dollars would embarrass the federal government or the various state governments when distributed among them.

I don't know how much time it is worth while to sacrifice in meeting the psychological and social objections to health insurance. The cry of malingery and fraud has been raised with equal strength against workmen's compensation six years ago, and largely by the same interests. Charges have been made against the German and English system on the same grounds, and yet, say what one will against our enemies, it is difficult to entertain the charge seriously, that 30 years of health insurance have made the German workingman a malingerer, weakling and molycoddle. In every branch of insurance there lurks an opportunity for fraud, abuse or even crime. Life insurance has been held responsible for the poisoning of many a husband by a devoted wife, and as for infanticide, that seems to have threatened to extinguish the race under the influence of insurance. Fire insurance leads to arson, accident insurance to self-mutilation and suicide, and sickness insurance to malingery and imaginable diseases. But since the free medical advice, operations, drugs and bandages constitute much the larger share of health insurance benefits, one doubts how much of a temptation and a stimulus to fraud these benefits may become. And no one agitates against life insurance,

fire insurance, or marine insurance, because of this opportunity for fraud.

Perhaps the most subtle and the most dangerous line of attack upon social health insurance is the one which may be characterized as "the method of the red herring." It is argued with a great deal of plausibility that health insurance is not the most effective way of meeting the problem of illness, that at best it is only a measure of relief and not of prevention. If the radical labor leader insists that what is wanted is a higher wage, and then the worker can take care of himself without any need for health insurance, we may freely agree with him, except as to say that what most workers need is both a higher wage and health insurance. But when the same solicitude for the higher wage standard is shown by a paid representative of an employers' association, one cannot help getting somewhat suspicious. For it costs little to be enthusiastically in favor of higher wages when social insurance is under consideration, and in favor of social insurance, when a higher wage is demanded.

An energetic and eloquent president of an insurance company, himself in the business of selling accident and health insurance, has suddenly discovered that insurance only indemnifies and does not cure. This discovery has not prevented him from pursuing his own insurance business, but has made him a violent opponent of any proposal for social, uncommercial health insurance. His is an urgent appeal that instead of wasting money on social insurance we install an energetic campaign for conservation of health, and prevent sickness, rather than compensate it.

It is a dangerous argument, largely because it is not an honest one. Of course it is always preferable to prevent a misfortune than to compensate for one. Of course all efforts for health preservation should be encouraged. But wherefore this antithesis between prevention and insurance? By improving economic conditions of the sick, by furnishing all necessary medical, surgical, hospital and nursing aid, health insurance will itself prove the greatest factor for health preservation. But try as hard as one may, it is idle to expect the millenium, at least in our lives. All safety work has not succeeded in abolishing industrial accidents, it has perhaps not yet even radically reduced their frequency. And surely we cannot seriously wait for the day when all sickness of the human race will be abolished.

It is of course permissible to enquire what is the effect on the incidence of the insurable hazard—whether it increases it or tends to reduce it. Not that we would discard insurance even if it did tend to increase the losses somewhat. Fire insurance is a universal necessity, and no one seriously argues against it, though it takes over 400 million dollars a year to protect against the loss of 200 million dollars. But nevertheless our enthusiasm for health insurance would be substantially dampened if it appeared that it tended to increase illness rather than reduce it.

In the early stages of a broad movement for social reform, the spirit of proselyting is the moving force, and some exaggerated claims and statements are inevitable. In a very detailed and erudite 100-page attack upon social health insurance, a prominent statistician makes a good deal of capital of these exaggerated claims. No sensible man expected compensation to eliminate industrial accidents, and no sensible man will expect health insurance to eliminate illness and death. But neither will any sensible man deny the substantial improvement in health conditions in Germany, and a very much less encouraging picture in Great Britain during the three decades preceding the introduction of health insurance.

So many different factors, climatic, economic, social and cultural, affect the rate of sickness, and so many different health agencies are at work at this time, that it is difficult to isolate the effect of any one factor with any degree of certainty. One may still, however, endeavor to reason the problem out in a deductive manner.

What is the hidden moral and social danger that lurks in any insurance plan? By substituting collective responsibility for individual responsibility, we may weaken individual vigilance and care, and thus increase the hazard. It is reasonable

to assume that this is a factor of some force, though it is difficult to measure it, and easy to exaggerate it. The owner of non-insured property is probably more worried about the possibility of a loss by fire, probably less careless than if he had been insured. The person with automobile insurance may be a less careful driver for that.

But isn't there a compensating factor? With the loss of individual responsibility and individual vigilance, there comes an increase in group or social responsibility and vigilance. While the owner may become less careful, the large fire insurance company has acquired an interest and responsibility. If through accident insurance the employer may tend to be less worried about industrial accidents, there is the compensation insurance carrier, which endeavors to prevent accidents, because it is responsible for them. In other words, it is almost bromidic to clamor that insurance is dangerous because it destroys individual responsibility. It is the very purpose of insurance to do so and to substitute social responsibility instead.

Is the gain equal to the loss? Is it greater or is it smaller? That is the serious problem. But no sooner is the problem so stated than the answer becomes obvious. The time has gone when the individual depended upon his safety or the safety of his property upon his vigilance, his own muscular strength. Civilized society has substituted a well-organized police system instead. In fact, so obsolete has the individual method of protection become, that the carrying of arms, the only practical way of enforcing this individual method, has been declared a crime. For prevention of fire and conflagration we depend upon proper construction, fire departments, water supply and so forth, for prevention of accidents, upon factory inspection and safety campaigns. And if in general, these collective methods are more important than individual methods, insurance introduces a new powerful factor of collective responsibility and care.

Schedule rating in fire insurance and compensation insurance, ship inspection and registration in marine insurance, employment agencies in connection with unemployment insurance, and a better organization of medical aid and a general extension of health conservation work as a result of health insurance.

Until now, I have refrained from making any specific appeal to the medical profession as such. The arguments made are general arguments only. It is, I think, unfair to the medical profession to assume that they are devoid of any social point of view and will consider a proposed social reform exclusively from the point of view of their own class interests. They do, moreover, have that advantage over the general body of citizenship that they are individually and as a group particularly interested in the problems of health, and they are particularly familiar with the relationship of economic and hygienic factors. It is difficult to see how the medical profession can reject the fundamental principles of health insurance.

There are, however, more specialized grounds on which an organized opposition of the medical profession to health insurance plans is being solicited, and at least two of these are sufficiently important to be considered at some length.

1. It is claimed that compulsory health insurance will result in a deteriorated medical service.

2. That this general social reform will be accomplished at the sacrifice of the interests of the medical profession and will react unfavorably upon their economic and social status.

The first argument proceeds from consideration of public interest, the second is admittedly a class or selfish consideration. But to say that, is not to criticize the factor. Every social, economic and professional group has not only the right, but the duty to protect its group interests, always provided that in so doing it does not neglect or sacrifice the larger public good. Notwithstanding these essential differences, both arguments are closely connected because they both deal with the problem of organization of medical aid. Moreover, it may be stated as an axiom that the lowering of the economic and social status of the medical profession would inevitably react in a deteriorated medical service.

Wherefrom do these fears arise? References are freely made to German and English experience which is said to offer evidence. It is comparatively safe to make such references, for there is seldom anyone present who is personally familiar with the facts. I have no time here to go into details of the conditions of medical aid and the status of the physician in either of these countries. But who will seriously claim that the quality of medical aid in Germany is lower than in the United States? If the earnings of the average German physician have been low, so are the earnings of all professions. As far as England is concerned, it is admitted that until the war so disturbed conditions as to make all comparisons useless, the health insurance system resulted in a higher income for the medical profession. It also resulted in a greater amount of work, which means to say that health insurances created an active demand for medical aid which did not exist before.

The conviction that health insurance means that nightmare of the conservative practitioner "contract practice," hasty work, poor pay, etc., arises from a misrepresentation of the medical service under health insurance, as simply an extension of lodge or club practice. Is this analogy correct? Is it inevitable?

I do not want to let my spirit of proselyting obscure my sense of truth. It is possible for a health insurance system if unskilfully drawn to injure the quality of medical service, the legitimate interests of the medical profession. The best broth may be spoiled in the cooking, the best law may be injured in the drafting. It does not follow that we must oppose all broths. No one better than the medical profession can protect standards of medical work, no one has a greater interest than they in preserving or improving the economic interests of the profession. For this reason, the medical profession would do much better in co-operating with, than in fighting the health insurance movement. Perhaps it is particularly important to emphasize it in Canada because of the natural inclination to follow British legislative standards which in the branch of health insurance are far from perfect.

What standards should the medical profession insist upon? I think it is fair to consider the patient's or public interests first. Health insurance is being advocated because it can accomplish certain purposes. Making the facilities of the healing art available to the average worker in a dignified way—that is perhaps the most important purpose. Some health insurance systems do that, others do not. To be quite frank, the British system falls far short of the ideal. It furnishes the insured the advice of the average family practitioner, a few drugs, but little beyond that. And without making any particular plea for the standard bill of the American Association for Labor Legislation, I want to point out that it is very specific and thorough in its demands for "all necessary medical, surgical and nursing attendance and treatment, all dental services for necessary extraction and other facilities for diagnosis and treatment, and arrangement with specialists, including dentists for consultation treatment and operation, also hospital, and sanatorium treatment." It is only when such a broad program is insisted upon that the fullest possibilities of health insurance in improving public health can be realized. It is the duty therefore of the medical profession to insist upon this larger program.

And now for the problem of organization. It is charged that a system of health insurance will destroy a very large part of the private practice. Cheap or inefficient physicians will be hired to do a tremendous amount of work in a slipshod manner for an inadequate remuneration. Underbidding between doctors will cut down their earnings. The physician will be at the mercy of organizations consisting of and administered by laymen. The patient will have no choice, but be treated by the physician assigned to him, and so on and so forth.

What is the answer? The answer is, that these are imaginary terrors, that none of these things will happen in a well-thought out system of health insurance, that they could not happen for instance, under the standard bill, that they can be prevented by an intelligent and active medical profession, that on the

other hand an efficient system of health insurance will accrue both to the economic advantage and to the professional satisfaction of the medical men.

There is a good deal of sentimental rubbish said about the absolute sanctity of private practice and the inequity of any other form of medical practice. But gradually, I believe, the medical profession is beginning to find out that it is rubbish. The times are gone when every salaried physician was kept out of the medical society for being a contract practitioner. The institutional and industrial physicians have gained a strong position in the medical profession.

Yet, I am not saying this for the purpose of advocating an enforced abolition of private medical practice. At present it is the prevailing form of administering medical aid to those who can afford to pay. It has its advantages in the intimate, cordial, confidential relationship which sometimes exists between the private patient and private physician. But would it be quite truthful to say that this is the prevailing form of medical aid among the industrial classes? And in so far as it exists, need health insurance destroy it? May not the opposite be true that health insurance will perhaps for the first time enable many millions to enjoy the advantages of private practice without its disadvantages—i.e., to be able to have a physician of his own choosing at his own house, without the fear of being unable to meet the bill?

I speak with hesitancy on actual conditions of medical practice prevailing in your communities. But in the cities of the United States private practice of medicine has become an unattainable luxury for a large proportion of the working population. Now, from the point of view of the physician, the sick people may be graded about as follows:

Grade A—The private patient who pays his bill.

Grade B—The club or lodge patient who pays something to the physician, but through the lodge.

Grade C—The workman who is treated by an industrial (or salaried) physician.

Grade D—The patient who goes to the hospital or dispensary to be treated by the physician, who receives no pay for his services.

Grade E—The private charity patient of the kind-hearted physician.

Grade F—The private patient who honestly intends to pay, but is finally prevented from doing so by force of circumstances.

Grade G—(Perhaps the better described as n.g.) The quasi-private patient who never intends to pay and does not pay, though proudly resents being classified as a recipient of charity. And, finally—

Grade H—The person who should be a patient but isn't, who is too poor to pay and too proud to beg, and who for long, much too long, goes without medical aid.

There may be others, but all these grades are sufficiently familiar to every physician. Why then persist in the fiction that all patients are Grade A. patients? Why discuss health insurance from the point of view of patients of that grade? When only a few of them will be affected. The real problem is how the interests of the profession will be affected by a transfer of a large number of patients from all the other grades to the new grade of health insurance patients. And in shaping an answer to this problem the grade H should be particularly considered—the many—no one knows how many—thousands who for the first time will be able and willing to avail themselves of the necessary medical advice.

Thus the total demand for medical aid will be increased, charity and unpaid medical work greatly reduced, and within the limits of health insurance, unpaid medical bills will become unknown. To assume that under such conditions the interests of the medical profession will suffer is to assume that in this one economic relationship all economic laws will be suspended.

Remains only one threatening factor to be considered: What is the essential change in medical aid introduced by a health insurance act? Instead of millions of individual purchasers, the medical profession will be confronted by comparatively few collective purchasers. It is not complimentary to the profession's

valuation of its own strength to admit the fear of this change. If the profession could be trusted to present an equally united front, the front of the profession rather than individual doctors, then the substitution of collective bargaining for individual bargaining should be advantageous to the profession. But since there is lack of faith in the ability of physicians to effective co-operation, such as carpenters or bricklayers seem to be perfectly capable of, legal guarantees become necessary. The advocates of health insurance admit that, but I think on the whole, the clamor of the medical profession for such legal guarantees is somewhat of a reflection upon the profession.

And what are the necessary guarantees? The first is freedom of choice of the physician by the assured. Experience in all European countries has proven that to be the most popular demand of the medical profession as well as the great bulk of the insured. Only some of the insurance carriers, for reasons of economy, object to to it. The reasons for the unanimity are obvious. Confidence plays a large part in the practice of medicine, and most patients are unhappy unless they go to a doctor of their own choosing. Physicians require it, because it prevents undue concentration of work, overwork of physicians, opens some chance to the young practitioner. The system has its shortcomings—it would be dishonest to deny this. Shrewd incompetence is often successful under it. There is an avenue to fraud, malingery, collusion between physician and patient. But nevertheless at this stage, freedom of choice is a necessary guarantee, and the evils that may arise from it must be controlled by stricter supervision.

And a second guarantee is representation of medical profession in all matters involving medical aid and the medical profession. If the higher purposes of health insurance are to be realized then the work of the physician must be subject to some supervision, especially if free choice is granted.

In private bargaining between physician and patient (because, after all, private practice presupposes such private bargaining) the physician may abandon the individual patient without too serious loss; he will be more dependent upon the insurance organization. Until the point of co-operation has become very much stronger in the medical profession than it is now, unfair competition is not excluded. An effective health insurance act should give the medical profession ample representation in the general administration of the law, in the control of contractual relationship between the organizations and the medical profession, and in the supervision of the quality of professional work rendered.

Should the state go further than that in protecting the interests of the medical profession? The horrible perspectives drawn of the future of the medical profession under the law—what are they based upon? If free choice is guaranteed, and thus the main foundation of private practice preserved; if the amount of paid medical work is substantially increased, as it must be—then the only possible danger is an insufficient rate of payment per services. Most extravagant statements are made as to what the physician receives per average visit in Germany and England. Should any act presume to determine that amount? And how should this rate compare with the present scale?

I think that the demand for a legally established rate of pay is an insult to the medical profession. Were a system of state medicine to be administered by civil service physicians intended, then of course a salary list would be proper. But, if it is intended to have this field of medical practice wide open to the entire medical profession, why should there be a legal regulation of the fee, any more than there is now? Kinds of medical work are many, conditions in many localities differ. A combined medical profession may be trusted to have energy and sense enough to insist upon a reasonable bargain. There may be different plans of providing for payment of physicians, the salary method, the percapita method, the visitation method, all might be experimented with in the beginning, though on the whole, under conditions of free choice, the visitation fee method will probably be found to be most easily adaptable.

Perhaps an apology is necessary for delving into those sordid details at this meeting devoted to public health problems. But childish idealism aside, it is an essential condition of social progress that a laborer is worthy of his hire, and medical progress, public health progress is seriously handicapped unless the nation has a well remunerated, respected, satisfied medical profession. I will not assume that the American people, or the Canadian people will begrudge their medical profession any reasonable demand, for after all the widest margin in compensation, when distributed among the insured, their employees and the public treasury, may mean only a few coppers a week per capita to each.

The North American continent has a very much larger proportion of physicians than any European country. It does not as yet boast of any perceptibly higher standard of health. Shall we assume that these standards are not affected by available medical facilities? Isn't this an admission that the medical profession is a useless burden? Or is the explanation to be found in the fact that for lack of proper organization, the American people never utilized their medical facilities to their full capacity? Patients without medical aid on one hand—doctors who have nothing to do, on the other. When health insurance brings these two together, we may find that one doctor for every 700 population is not too much, and that every 700 population can afford through collective effort to support a warden of their health, as it will support more than one teacher, minister or lawyer.

Health insurance is not a panacea. Nor is it a secret remedy. It does not promise to accomplish anything that could not conceivably be accomplished in other ways. But it is a simple, practical, common sense, widely tried out, method of marshalling the financial and medical resources of a civilized community in the fight against the vicious circle of circumstances, under which disease breeds poverty and poverty breeds disease. Surely the medical profession cannot afford to be registered in an attitude of opposition to this social reform.

The Need of Health Insurance*

By Irving Fisher
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IN the last six months, through the efforts of the American Association for Labor Legislation, a consciousness of the imperative need in this country for health insurance has dawned upon thinking Americans. Within another six months it will be a burning question in many states. As Dr. Blue, surgeon general of the United States Public Health Service, has said, it is the next great step in social legislation in this country.

At present the United States has the unenviable distinction of being the only great industrial nation without compulsory health insurance. For a generation the enlightened nations of Europe have one after another discussed the idea and followed discussion by adoption. It has constituted an important part of the policy and career of some of Europe's greatest statesmen, including Bismarck and Lloyd George. Germany showed the way in 1883 under the leadership of Bismarck. This act was the first step in her program of social legislation. Her wonderful industrial progress since that time, her comparative freedom from poverty, reduction in the death rate, advancement in hygiene, and the physical preparedness of her soldiery, are presumably due, in considerable measure, to health insurance.

Following the example of Germany, health insurance was adopted successively by Austria, Hungary, Luxemburg, Norway, Serbia, Great Britain, Russia, Roumania, and Holland. Other countries have adopted a subsidized voluntary system, namely, France, Belgium, Switzerland, Denmark, Sweden and Iceland. Thus the only European countries which, like the United States, are without any general system are Italy, Spain, Portugal, Greece, Bulgaria, Albania, Montenegro, and Turkey.

Because we have a democratic form of government we have peacefully assumed that our civilization is more advanced than others, but while we have rested complacently on our oars, other nations have forged ahead of us. The war has at last startled us out of our Rip Van Winkle slumber, and we are now passing through a period of national self-examination.

There are special reasons to hope that health insurance may win favor rapidly. The war has made labor scarce, and therefore dear. This fact will make not only for high wages, but also for the conservation of labor. Students of the history of slavery find that when slaves were abundant and cheap, masters worked them to death and replaced them when worn out. Consequently cruelty was condoned and fashionable. On the other hand, when slaves were scarce and dear, the masters took good care of them, and a humanitarian sentiment developed to correspond. I believe it to be a correct economic portent that the world is about to enter upon a period of life conservation. The war has for a time withdrawn much of the world's labor supply and destroyed and maimed a large part of that which it has withdrawn. The world will seek the greatest possible salvage out of the wreck.

This impulse to conserve has at first been felt in terms not of industry, but of military preparedness. The strong impetus toward preparedness of all kinds has been the result. Witness the recent laws in New York for compulsory physical training in the public schools. Health insurance and other measures for health conservation will in turn be furthered by the same impulse toward conservation.

Fortunately we have already taken one step in a social insurance program. After a long and uphill fight, workmen's compensation has had a belated recognition in America. The American Association for Labor Legislation was foremost in this fight, and now at last it is ready for a

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similar fight to secure workmen's health insurance. For four years an able committee of this Association has been studying American conditions and foreign health insurance acts, and constructing a standing bill. This bill, with some variations, has been introduced into the state legislatures of Massachusetts, New York, New Jersey, and commissions to consider the subjects have been appointed in Massachusetts and California and are expected to report in January. It is significant that so large were the throngs which attended the public hearing of the Massachusetts commission on October 3, that the meeting place had to be twice changed during the hearing, to larger quarters. During the ensuing year it is expected that the bill will be introduced in about twenty state legislatures.

The United States Public Health Service has issued a special study on health insurance by Dr. B. S. Warren and Edgar Sydenstricker. The American Medical Association has a working committee on health insurance, of which Alexander Lambert is chairman, and I. M. Rubinow, secretary. This association has published a report on social insurance. Several medical societies, including the Pennsylvania State Medical Society and the State Medical Society of Wisconsin, and several public health associations, have endorsed the principle of health insurance. The American Association for the Study and Prevention of Tuberculosis and many of its affiliated organizations have, through public meetings and otherwise, helped the movement. A number of charitable organizations have also favored the idea, and forty-five organizations of various natures, including the American Academy of Medicine, the International Association of Industrial Accident Boards, the National Conference of Charities and Correction, the New York Chamber of Commerce, and the American Public Health Association have appointed committees to study and report upon health insurance.

The federal Commission on Industrial Relations recommended health insurance. In accepting favorably the report on health insurance of its industrial betterment committee, the National Association of Manufacturers at its annual meeting last May, put itself on record as favoring the project. The chairman of the same committee stated in July, 1914: "I give it as my opinion that sickness insurance of some kind, with compulsory contribution on the part of employers, will be enacted into law by many states of the union within the next five years." The Associated Manufacturers and Merchants of New York State have expressed their approval.

Many trade unions have taken up the subject. Some have strongly favored the idea; a few leaders have vigorously opposed it, apparently because of a groundless fear that in some way the power of the labor unions would be lessened. Thus some oppose health insurance, as they at one time opposed compulsory workmen's compensation. On the other hand several international unions, including the International Typographical Union, have definitely gone on record as favorable. State federations of labor in Ohio, New Jersey, Massachusetts, Missouri, Nebraska, and Wisconsin, are favorable. A number of local trade unions have taken favorable action. Many individual labor leaders of prominence have definitely approved it; these include John Mitchell, Ignatius McNulty, Van Bittner, James H. Maurer, Andrew Furuseth, S. E. Heberling, John B. Lennon, James O'Connell, Austin B. Garretson, William Green, and James Duncan.

The cordial and almost unprecedented welcome which this movement has received in spite of the opposition of strong vested interests and their industrious and insidious efforts to misrepresent and injure the movement would seem to indicate that the time for health insurance in the United States is ripe.

The plan as put forth by the American Association for Labor Legislation is fully described in its draft of a standard bill and defended in its Brief for Health Insurance. The bill proposes the obligatory insurance of substantially all workingmen and women. In case of sickness the insured will receive medical or surgical service, medicines, and nursing, and a cash benefit amounting to two-thirds of the weekly wages of the insured for the

period of illness up to six months. Maternity benefits are provided for childbirth, and funeral benefits for death.

Benefits are paid for at cost by the joint contributions of the insured employee, his employer, and the state. The cost to the employee will average about 1½ per cent. of his wages. The cost to the employer will be an equal amount, while the state will pay half as much as either the employer or the employee. These are the main points covered in the standard bill. I am here concerned, however, not with the merits of this particular plan, but with the need of some plan of universal health insurance for workmen.

The need for health insurance, like that for most other forms of insurance, is twofold. There is the need of indemnification against loss, and the need of diminishing the loss itself.

Indemnification is the essence of the insurance principle. It spreads the loss of each person in a group over them all. For each individual it converts large fluctuating haphazard losses into small regular and certain costs. Insurance aims to reduce fluctuations—to make the income stream more steady. It is more economical to pay a little premium for fire insurance each year than to suffer a big loss when the fire comes. This insurance principle is of the greatest importance in economics and in business. The well-to-do have long made use of it in fire insurance, marine insurance, life insurance, fidelity insurance, plate glass insurance, steam boiler insurance, and, to some extent, accident and health insurance. The capitalist has long endeavored to eliminate, or at least to reduce, every determinable risk. But the curious and melancholy fact is that outside of workmen's compensation the poor in this country have received, as yet, very little benefits from the application of the insurance principle. Yet it is the poor whose need of health insurance is greatest, and for two important reasons. One is that the worker is more likely to lose his health than the capitalist; for it is well-known from several lines of research that the death rate, and therefore the sickness rate, prevailing among the poor is from two to three times that prevailing among the well-to-do. The other reason is that any loss from sickness is a far more vital matter to the poor than to the rich. That low-paid workingmen seldom insure against illness, is undoubted.

No very exact or recent estimate on this point seems to be available, but according to a study of the Connecticut Bureau of Labor Statistics in 1891, the great bulk of membership in fraternal societies was at that time made up of the well-to-do; only a small fraction, from one-sixth to one-third, consisted of "low-paid mechanics and clerks." Moreover, these societies do not always provide health insurance. Certain it is that as yet the amount of voluntary health insurance in the United States such as that under fraternal societies, labor unions, establishment funds, and insurance companies, covers only a small fraction of workingmen and women. Judging from the tentative estimates of Rubinow, only about 5 per cent. of our workmen needing insurance actually have it. The other 95 per cent. have been deterred by the high cost of such insurance under the voluntary system, by their lack of appreciation of its benefits, by the inertia of custom, and by the sheer desperation of poverty.

To ascertain the exact extent of health insurance in the United States we need further investigation, but we know with certainty that the amount is small. Even in England, where friendly societies have had voluntary health insurance for generations, and developed it far beyond the United States or any other country, the number of the insured was never half that to be reached by the compulsory system. This was demonstrated by the fact that when the compulsory system was actually introduced in 1911, the number of the insured was at once more than doubled. Presumably the half that needed it most was the half that lacked it until the universal system was adopted. From these facts it is apparent that the present insurance facilities in the United States are, and, as far as we can see, always will be, hopelessly inadequate.

It is also true that millions of American workmen cannot at present avail themselves of necessary medical, surgical and

nursing aid. When they most need it they cannot pay for it. The Rochester survey of the Metropolitan Life Insurance Company showed that 39 per cent. of the cases of illness did not have a physician in attendance.

Workmen's health insurance is like elementary education. In order that it shall function properly it needs must be universal, and in order to be universal, it must be obligatory. In regard to obligatory military training it has been said that what America most needs to-day is a higher appreciation of obligation, and that without it we shall ever be a drifting, weak, and inefficient nation. The case for compulsory health insurance is, however, far clearer than that for compulsory military training. In health insurance, as in education, we are dealing not with obligatory burdens, but with obligatory benefits.

Certain interests which would be, or think they would be, adversely affected by health insurance have made the specious plea that it is an un-American interference with liberty. They forget that compulsory education, though at first opposed on these very grounds, is highly American and highly liberative, that prohibitory laws on various subjects such as habit-forming drugs and even alcohol have introduced liberative compulsions in many states in America, and that workmen's compensation acts have introduced liberative compulsion in this very field of workingmen's insurance. The truth is that the opponents of compulsory health insurance are in every case, as far as I can discover, subject to some special bias. They grasp at the slogan of liberty as a subterfuge only.

> "Oh liberty! liberty! How many crimes are committed in they name!"

According to the logic of those now shedding crocodile tears over health insurance, we ought, in order to remain truly American and truly free, to retain the precious liberties of our people to be illiterate, to be drunk, and to suffer accidents without indemnification, as well as to be sick without indemnification. In fact, if compulsory health insurance is tyranny, all labor laws, all tenement laws, all health laws, all pure food laws, even all laws, are tyranny. In fact, all laws are an interference with some one's liberty, even laws against vice and crime. It is the nature of the Law to restrict. But it is by the compelling hand of the law that society secures liberation from the evils of crime, vice, ignorance, accidents, unemployment, invalidity, and disease.

We have already seen that most of the enlightened and progressive nations of the world have, one after another, adopted compulsory health insurance. This would not have happened if it were a real interference with liberty. England, the most liberty loving of nations, the home of laissez-faire, adopted the compulsory system after careful and deliberate study of the German and other systems.

It is also noteworthy that where, as in Switzerland, France, and Belgium, the half-way stage has been reached of a subsidized voluntary system, the tendency has been to convert this into a compulsory system. Such a change was about to be put on the statute books in Belgium when the present war broke out.

In addition to the primary advantage of universality, there are incidental advantages in the compulsory system. There are important economies in administration owing to the elimination of the cost of collection, the cost of advertising, and the other costs of securing business as well as in the elimination of lapses, and of the necessity for accumulating a large actuarial reserve in invested funds. The advantages are similar to those recently realized by insurance companies in some degree and on a small scale in "group insurance."

The superintendent of insurance of the District of Columbia reports that the people who pay health insurance premiums to agents who collect 10, 15 and 25 cents a week at the home of policy holders "have to give up $1 for every 40 cents a week at the homes of policy holdvention of Insurance Commissioners in their examination of the fourteen principal companies writing industrial health and accident insurance found that the ratio of losses showed that the policy

holders spent $1 to receive back a benefit of between 30 and 46 cents. These figures are in striking contrast to the results of the compulsory system abroad; even in England where the cost of administration is high because of the supposed necessity of utilizing pre-existing friendly societies, the administrative cost amounts to only 14 per cent. of the income of the national health insurance fund, or something like one-fourth to one-third the cost under the voluntary system.

Under the voluntary system the policy is apt to lapse just when it is most important that it should not. The Armstrong investigating committee in New York (1906) received testimony from one of the largest of the industrial life insurance companies to the effect that one-third of the policies lapse within three months, one-half within a year, and nearly two-thirds within five years! Under the compulsory system there could be no lapses.

As important as is indemnification, it is far less important than prevention. Almost all insurance sooner or later adds the function of the prevention of loss to that of indemnifying against loss. Fire insurance has led to the use of slow-burning construction and other safeguards against destruction by fire. Marine insurance has led to safety at sea. Some steam boiler insurance companies expend as much as 40 per cent. of their income in inspection and other preventive work. Life insurance companies are now instituting devices for extending human life.

It is well known that the form of social insurance recently adopted in the United States, namely, "workmen's compensation," has had the effect of greatly stimulating industrial methods in accident prevention. Out of workmen's compensation came the "Safety First!" slogan and the public movement which it represents. J. D. Beck, of the Wisconsin Industrial Commission, declared that more progress in accident prevention had been made in his state in one year under workmen's compensation than in any previous period of five years.

The importance of prevention depends in any individual case on the degree of preventability, and in the case of human morbidity the degree of preventability is enormous. Even in the last few years there have been opened up hitherto undreamed of possibilities for adding to life's length, vigor, and happiness.

The health movement can be far more potent than the safety movement because sickness is more prevalent and more preventable than accidents. Pasteur convinced us that "It is within the power of man to rid himself of every parasitic disease," and his successor, Metchnikoff, went far to show us that the normal life span, the Utopian ideal for future generations, is much beyond the century mark. Without looking so far ahead we may, I think, accept as conservative the calculations of the National Conservation Commission that at least 42 per cent. of the deaths now occurring in the United States are unnecessary, or that over 630,000 lives could be saved annually by applying existing and known methods of life saving, which would add at least fifteen years to the average duration of human life. These estimates are doubtless over-conservative, as may be judged from the data of the Commission on Industrial Relations, from the recent health surveys of the Metropolitan Life Insurance Company, and from other evidence.

After some fifteen years' study of the preventability of sickness, I am convinced that the great virtue of health insurance, for decades, perhaps for centuries to come, will lie in the prevention of illness. It has already achieved considerable life saving in Germany, although when the system was established there the idea of the preventability of disease was in its infancy. According to Dr. Zacher, reputed to be the best authority on health insurance in the world, twelve years were added to the worker's life span during thirty years of health insurance. We may properly attribute part, if not most of this increase, to health insurance. This prolongation of life is at the rate of forty years a century, the highest rate of increase known in any country or any period of time.

Health insurance will afford a very powerful and pervasive stimulus to employees, and the public men to take fuller

and speedier advantage of possible health saving devices. The standard bill of the Association is so drawn as to give any locality and any trade the benefit in lower contributions of any reduction in sickness rates which may be achieved, thus creating an immediate financial motive to reduce illness.

Just as employers have installed safeguards for dangerous machinery in order to reduce the cost of workmen's compensation, so in order to reduce the cost of health insurance they will supply, for instance, better sanitation, ventilation, and lighting, more physiological hours of labor, and fuller consideration for the special needs of employed women and children. In localities where the employer provides tenements for his workmen, he will be led to study and improve housing conditions. So-called welfare work will be made more effective and helpful. Employers will collect facts and statistics as to sickness, analyze them and apply such corrections as the facts discovered indicate. Dr. Rubinow states that a large corporation after introducing health insurance tried, for the first time, to discover its sickness rate and found it to be three times what is usual. Further investigation showed that this excessive rate was due to bad conditions, not in the factory, but in the sanitation of the city. As a consequence an effort was made for the first time toward improving these conditions. It is especially to be expected that as soon as employers realize the nerve strain caused by overlong hours and consequent increase of illness and, therefore, the cost to themselves, they will acquaint themselves with the effects of long hours of labor and reduce them.

The employee, on the other hand, will be likewise stimulated to welcome and to utilize factory hygiene, and improve his own domestic hygiene and individual hygiene. If there could be any doubt as to the reality or strength of this impulse it would vanish after observing the experience in Connecticut of the employees' relief associations organized to combat tuberculosis. Each workman contributes at least 25 cents, and, as a consequence of that investment, takes a surprising interest in seeing that his money is wisely expended and that tuberculosis cases are promptly discovered and sent away for treatment. The possibilities of self-improvement through learning how to live, are far beyond what any one who has not gone over the evidence realizes. The evils of bad air, bad food, imperfect teeth, wrong posture, improper clothing, constipation, self-drugging, alcoholism, etc., are now overlooked by ninety-nine workmen out of a hundred. Here is a wonderful opportunity for effective and intelligent leadership among committees of wage-earners. The employee will be more ready to apply to his own internal machinery a principle, long since applied by his employer to inanimate machinery, the principle of inspection and repairs. After health insurance has been adopted, slight impairments to health will be remedied before they become serious.

At present we find the United States, in striking contrast to health insured Europe, is suffering from an increase of the death rate after middle life. The increase consists of an increase in degenerative or wear-and-tear diseases, and is due to the growing neglect of personal and other hygiene. The death rate from degenerative diseases in the United States registration area has increased 41 per cent. in twenty years.

One important effect of such attention to the health of the workman will be the prolongation of his life, and especially of its earning period. Fewer workingmen will be thrown on the scrap heap in their forties with all the tragic consequences involved to their families as well as to themselves.

Moreover, the cash benefit gives the workman a better chance for recovery as well as a more perfect recovery if attained; for, to the poor, the obstacles to recovery are largely economic—insufficient food or other necessaries, worry over making both ends meet, and the consequent necessity of a premature return to work while still half-sick. It is found that the longer the time given up to sickness, which means the more care given to get well, the lower the death rate. Critics of German insurance have pointed to the fact that the number of days' absence

from work per person on account of illness has increased under health insurance, but as Dr. Rubinow points out, this increase is partly, if not wholly, due to improved and longer care of the sick. Only part, and probably a small part, can be charged up to malingering.

Again, under compulsory health insurance, both employer and employee will cooperate with the general public in securing public water supply, better sewerage systems, better milk, meat, and food laws, better school hygiene, more playgrounds and parks, and proper regulation of liquor and other health destroying businesses.

Health insurance will also, as it did in Germany, help to meet the crying need for rural sanitation, and bring adequate medical and housing care to American farmers and their families.

Health insurance will operate, as it did in Germany, to stimulate the general scientific study of disease prevention, the future possibilities of which though unknown are, we may be sure, enormous. A German observer states that social insurance led to new knowledge in the field of occupational diseases, epidemics, and accidents. Dr. Lee K. Frankel, now of the Metropolitan Life Insurance Company, said at one time that "German insurance legislation has been effective in producing a comprehensive industrial hygiene." Dr. Bielefeldt, quoted by Frederick L. Hoffman, says:

> The conviction may be expressed, after the experience of several years, that an effective battle against consumption among the working classes would have been all but impossible without the workmen's insurance of the German empire, and, by the support of their powerful pecuniary resources and with the aid of national social regulations, in the end we are quite certain to be victorious.

In Great Britain the health insurance act has led to education on the prevention and treatment of tuberculosis, many of the insurance committees having arranged for lectures, moving picture shows, and other means of educating the public.

I venture to predict that medical and hygienic discoveries and applications will be far more rapid in the future than in the past. What directions these discoveries will take, can only be guessed. I expect, however, that a new field will be found in what may be termed industrial psychiatry, the development of which will not only diminish definite diseases, but will also diminish industrial discontent and give back to the workman what the economic division of labor has taken away from him—a real interest in his work. The studies of a few of us in economics, particularly Professor Carl Parker, of the University of California, and a few in industry, particularly Mr. Robert B. Wolf, of the Burgess Sulphite Fiber Company, of Berlin, New Hampshire, have led to the conclusion that a fundamental, perhaps the fundamental, cause of industrial unrest is to be found in the fact that most workers at present cannot in their daily tasks satisfy the fundamental human instinct of workmanship. At present, many, if not most, workmen are interested only in their pay envelopes. I anticipate that, within a few years, under proper stimulus, psychiatrists will be able to show employers how to make jobs interesting, through a system which enables the workman to understand and keep a record of the results of his efforts and to receive credit for them in the eyes of his fellow workers, his employer, and himself. What little experience is as yet available, points to the conclusion that devices for securing a genuine enthusiasm for the job mean much more than any system of scientific management for the health and happiness of the employee, for industry, and for industrial peace.

Besides health insurance, many other stimuli of course exist, but they need reenforcement. Moreover, nothing can equal health insurance as a stimulus to prevention among employers and employees.

But prevention of disease and disability is not the only prevention to be effected by health insurance. It will indirectly, but powerfully, tend to reduce poverty. In the first place, the simple operation of the indemnity principle itself tends to reduce poverty. Poverty to-day is largely mischance. When a poor man becomes sick, unless he can tide the emergency over by insurance or otherwise, he runs the risk of getting "down

and out." for he has little or no margin. Without health insurance a vast number sooner or later exhaust whatever margin they have and sink into poverty—a land from whose bourne few travellers return. Students of gambling condemn games of chance because sooner or later most gamblers must lose enough to throw them out of the game. At present the American workmen without health insurance are gambling with their livelihood and in millions of cases are sure to be thrown out of the game. It is not a question of average well-being, but of the numbers diverging from the average. One opponent of health insurance says it is not needed in America because the "average" American workman is comfortably situated. Aside from the fact that the most comfortably situated workman needs health insurance, we must not forget that that majority of workmen have less than the average wages and that a large minority have more than the average sickness (of a little over a week) per year. It is true that American wages are, on the average, much higher than German wages, but poverty is, or was before the war, markedly less in Germany than in the United States. This is doubtless largely if not chiefly owing to health insurance. The German laborer has not been allowed to gamble with disease and let it often win away from him his little all. In America, where the workingman is not protected, we see the results in the casual laborer. Warren and Sydenstricker's Health Insurance, already referred to, states:

"The casual laborers at the docks in New York City are composed largely of workers who have gradually lost their economic status in industry, and the dock worker continues to slip down in the industrial scale until he reaches the class of "shenagoes," the down-and-out longshoremen who are capable of only light work and who finally become burdens upon public and private charity. According to testimony before the United States Commission on Industrial Relations, most of the 7,000 applicants for work at the San Francisco Co-operative Employment Bureau were of the casual labor class, and one-half of the total number of applicants were found to be incapacitated for work on account of poor nutrition, disease and exposure. The records of many investigators of the unemployed abound with similar instances."

Frederick Almy states:

"In Buffalo, sickness is more serious in our work for the poor than anything else. It far exceeds unemployment as a cause of poverty. Last winter, 1914-1915, for instance, when the industrial depression was so high, we paid out $13,646 on account of unemployment, and $29,275, or more than twice as much, to families in which there had been sickness during the year."

Again, the Charity Organization Society of Buffalo, reported in 1916, that, "Last year in Buffalo less than 1 per cent. of our poverty was due to lack of work, and more than 76 per cent. to sickness." According to an officer of the United States Public Health Service, assigned to the Commission on Industrial Relations, sickness produces seven times as much destitution as industrial accidents. Dr. Devine found among 5,000 families known to the Charity Organization Society that in 75 per cent. illness was a part cause of poverty. The report of the Immigration Commission of 1909 states that "The illness of the bread-winner or other members of the family was 'the apparent cause of need' in 38.3 per cent. of the cases, while accidents were a factor in but 3.8 per cent. of the total applications for aid." "At the New York legislative hearing on the health insurance bill in 1916, it was shown that 37 per cent. of the families assisted by the New York Charity Organization Society are dependent because their wage-earners are disabled by sickness, while two-thirds to four-fifths of the expenditure of the New York Association for Improving the Condition of the Poor is for relief necessary because of illness." In the report of the New York Factory Investigating Commission (1915), one working woman gives it as her experience that "practically every week, in her factory, there is either a collection or raffle for the benefit of some worker who is sick, who has no resources, and who therefore is an object of the charity of her fellow employees."

This custom, states the report, is really of considerable significance as an indication of how few are able to accumulate for times of emergency. It is also significant in showing how dire is the need of health insurance; for raffles and the like are a sort of stop-gap or make-shift for health insurance.

We see, then, that the claim that in America we do not need health insurance because the workman is so well-to-do is very evidently not in accord with the facts. As the Brief for Health Insurance of the American Association for Labor Legislation says, and as the above statistics would indicate, "America evidently presents no exception to the finding of Mr. and Mrs. Sidney Webb, that 'In all countries, at all ages, it is sickness to which the greatest bulk of destitution is immediately due.'"

Aside from the reduction of destitution, health insurance will tend to raise slightly the entire wage level. As Professor Moore, of Columbia, has shown in his Laws of Wages, the wage level is fundamentally influenced by industrial productivity. Anything which raises the physical stamina of workmen increases their productivity and earning power. Thus the victims of hook-worm disease in the South are poor, and constitute the "poor whites" because they are afflicted with the "germ of laziness," their power and inclination to work are crippled. The Life Extension Institute found that out of 2,000 workingmen and women, over 99 per cent. were below their normal working power, i.e., were suffering from some condition or habit which subtracted from their efficiency. These minor impairments of health and efficiency are mostly preventable, and, in fact in the group referred to, were in part prevented through the suggestions of the institute to the workingmen themselves.

Finally, we may expect health insurance to help forward industrial peace, for it will create machinery for continual conference between employers and employees.

We conclude that health insurance is needed in the United States in order to tide the workers over the grave emergencies incident to illness as well as in order to reduce illness itself, lengthen life, abate poverty, improve working power, raise the wage level, and diminish the causes of industrial discontent. It is not a panacea. It will not bring the millennium. But there is no other measure now before the public which equals the power of health insurance toward social regeneration.

Detection and Isolation of Diplococcus, Intra-Cellularis Meningitidis

Read at Sixth Annual Congress of Canadian Public Health Association, Ottawa, September 28th, 1917.

By Captain R. D. Defries, C.A.M.C.
Assistant Director Antitoxin Laboratory, University of Toronto.

THERE are few diseases in which greater importance is attached to laboratory findings than in the instance of epidemic meningitis. This is at once apparent when we realize that not only the correct diagnosis of the clinical case of meningitis rests upon the careful examination of the cerebro-spinal fluid, and secretions of the naso-pharynx, but also the control of an epidemic is largely dependent upon the successful detection and detention of the healthy carriers of the meningococcus. The methods employed in identifying and isolating the meningococcus from the cerebro-spinal fluid and from the secretions of the naso-pharynx can best be outlined separately. These outlines will of necessity be very brief.

Isolation of the Meningococcus from the Cerebro-Spinal Fluid

The fluid should be collected carefully in a sterile tube or small flask. The mouth of the tube should be covered during collection with a sterile piece of cotton or a swab moistened with 1-20 carbolic solution. This precaution is frequently omitted, and the cotton plug removed from the sterile tube is left on the table or bed during the whole process. In this way the fluid is contaminated by air organisms or spores, which either prevent entirely or delay the successful isolation of the meningococcus or other causative organism. The physician making this puncture should be especially requested to observe this precaution, and should be urged to send to the laboratory with the fluid, detailed information as to history, condition of the patient at time of puncture, and the rate of flow of the fluid from the needle as indicating the degree of cerebro-spinal pressure. The fluid should be sent at the earliest moment to the laboratory, as the chance of obtaining a culture of the organism is much greater, and the laboratory report expedited. It must not be thought, however, that it is useless to make cultures from fluid which is twenty-four hours old or even forty-eight hours. We have obtained cultures of the meningococcus from fluids mailed to Toronto from Sudbury and North Bay, which were quite seventy-two hours old. The antitoxin laboratory now sends out with each order of anti-meningitis serum a sterile tube for receiving a sample of the fluid. This is packed in a mailing case, stamped with a special delivery stamp to hurry its delivery in Toronto, and addressed to the department. Out of twelve samples returned, nine cultures have been obtained, and all of these fluids were more than twenty-four hours old when received.

The fluid from first puncture is usually very turbid, frequently with an actual deposit of pus. If, however, the fluid is drawn early in the disease, the turbidity may be slight, and occasionally one obtains a culture of meningococcus from a practically clear fluid. The fluid in the case of pneumococcus meningitis is usually much less turbid and the composition of the cellular content is different; so also in tuberculous meningitis.

A tentative diagnosis from the gross appearance of the fluid is often rendered much more difficult by the fluid being blood-stained, owing to puncture of the venous plexuses on the ventral side of the cord. A little blood frequently makes an absolutely clear fluid seem suspicious of pneumococcus meningitis in the presence of slight meningeal symptoms. Care

in making the puncture will facilitate the diagnosis.

The fluid should be thoroughly centrifugalized clear fluids for at least thirty minutes. Smears of the sediment should be stained, several with a reliable gram-stain and several with methylene blue. The identification of the meningococcus in smears depends on the gram-staining. It cannot be urged too strongly that the gram-stain should be tested for its ability to satisfactorily stain a smear of known gram-positive organisms in institutions where the stain is not in frequent use. If the stain is unreliable through age, or if the technique of staining is faulty, it should be remembered that gram-positive organisms such as the pneumococcus may appear gram-negative and an incorrect diagnosis be made.

Microscopic examination of the smears show very large numbers of polymorphonuclears and the meningococci, usually few in number and existing as diplococci, may be found. The term diplococcus intra-cellularis is misleading, as the organism is much more frequently found outside the pus cells than inside, in smears, which show few organisms. One is usually rewarded after considerable searching, by finding several pairs inside a pus cell. The presence of the organism outside the cells is, however, quite sufficient for diagnosis. This picture is in contrast to that of pneumococcus meningitis where one finds fewer cells—mononuclears being present in equal, or even greater numbers than the polymorphs, the organism existing also in pairs, but staining gram positive. The pneumococcus is frequently present in large numbers, existing as a diplo-bacillus, or in fewer numbers as a diplococcus.

The meningococcus cannot be isolated on plain or glucose agar, but requires media containing some uncoagulated protein, as serum, whole blood, or better, "laked" blood of any animal other than the ox. The most satisfactory medium for culturing the organism is sheep serum veal agar with one per cent. glucose. The necessary serum is added in the form of serum water which can be sterilized before using, thus minimizing the chance of infected media. Sheep serum is used, diluted with three parts of water, and sterilized in the Arnold sterilzer for twenty minutes on three successive days. This gives an opalescent fluid which can be added in the proportion of one part to five parts of melted glucose agar, neutral in reaction, and the tubes can then be slanted. Plates may be poured in the usual way, 2 c.c. of serum being added to the cooled melted agar before pouring.

The addition of a few drops of fresh human or guinea-pig blood to the surface of the slants is not only of assistance in obtaining a growth of the meningococcus, but it is of special value in obtaining a growth of the pneumococcus if that organism should be present. Sterile, haemolyzed rabbits blood can be used in proportion of 1 c.c. to 10 c.c. of cooled, melted agar, and has the advantage of not rendering the media opaque. In some cases where no growth on the above media was obtained in the ordinary way, a luxuriant growth was obtained by using a recent suggestion of reducing the oxygen tension in the culture tube by connecting directly to the planted tube, a heavily seeded agar slant of an active aerobe as B. subtilis. This method can be carried out so easily and gives such good results, that it has been used as a routine procedure in our laboratory and may account for the favorable results obtained in isolating the organism from samples of old fluids. It is important to plant the serum agar tubes quite heavily with the centrifugalized sediment. Any sediment remaining after planting is kept in the incubator at 37° C until the results of the cultures are known. Growth may be slow, and may not appear during the first 24 hours. It is therefore advisable to continue incubation for at least two days before discarding the tubes.

Isolation of the Meningococcus from the Naso-Pharynx

The importance of isolating the meningococcus in pure culture from the secretions of the naso-pharynx is at once apparent in dealing with suspected carriers. It is impossible to definitely establish the fact that an individual is a carrier without the isolation of the organism in pure

culture, and the proving that the organism so obtained is a true meningococcus.

Swabs should be carefully taken by one experienced in nose and throat work, and should not be entrusted to an assistant. The "West" tube was designed to meet the need for a swab which was safeguarded from contamination by the acrobic bacteria of the saliva, and which could be used in the hands of a less experienced person. This tube consists of a glass tube 1/3 of an inch in diameter and about six inches long, bent at one end at nearly a right angle. A copper wire carrying at one end a smoothed cotton swab is inserted inside the tube. The swab is pulled well back within the tube and both ends plugged, before sterilizing. When ready for use, the plugs are removed and the tube inserted into the mouth. The swab is pushed forward and touches first one side and then the other side of the post-pharyngeal wall. The swab is then retracted within the tube and the tube withdrawn. The swab should at the earliest possible time be rubbed over the surface of a serum agar plate and incubated at 37° C. for 24 hours. The plates should then be removed and allowed to stand at room temperature for 12-24 hours. It is advisable to incubate the plates immediately after planting, as the organism rapidly dies, in contrast to its rather long life in spinal fluid. The advantage of allowing the plates to remain at room temperature for some hours is that the non-pathogenic gram-negative cocci continue to grow and give evidence in many cases of chromogenesis. It is difficult to differentiate many of these organisms from the true meningococcus at the end of twenty-four hours' incubation on a serum agar plate.

Briefly the gram-negative cocci occuring in the naso-pharynx may be grouped as follows:

Meningococcus group.
Micrococcus flavus group.
Micrococcus catarrhalis.
Chromogenic cocci.
Microscopically all of these organisms

are alike and all are gram-negative. Ordinarily, however, the colonies of the micrococcus flavus group can be readily distinguished in forty-eight hours by their characteristic chromogenesis. Subcultures are found to grow readily, some even at room temperature and on plain agar. A few strains however, very closely resemble the meningococcus culturally and may be differentiated by agglutation tests. Micrococcus catarrhalis can be fairly easily indentified off. The colonies are more opaque, sharply defined borders and subcultures grow fairly well at room temperature and on plain agar.

Smears should be made of all suspicious colonies and gram-stained. If gram-negative, subcultures are made on both plain agar and serum agar and when obtained in pure culture, the organism can be tested for its ability to ferment dextrose, maltose, saccharose and levulose. The meningococcus ferments either dextrose, or maltose, or both; the micrococcus flavus presenting variable reactions usually fermenting saccharose and levulose, and the micrococcus catarrhalis having no action on any of these sugars.

It has been definitely shown that meningococci are not immunologically similar but various strains fall into two well defined groups. Dopter, in 1909, distinguished between the prevailing type or so-called "Regular" strain, and a second type, now known to be almost as common, which he named the Para-meningococcus. There are, however, a considerable number of strains which do not fall into these two groups and are best spoken of as "Irregulars."

In our routine work, any gram-negative coccus which ferments saccharose or levulose is ruled out as a meningococcus. It is not possible, however, to rule out an organism which does not ferment, as being micrococcus catarrhalis, as some strains of known meningococci ferment these sugars very feebly. Reliance therefore, in the absolute identification must rest on agglutination tests.

Microscopic agglutination is most commonly used, and the following is the technique as employed at the Rockefeller Institute. The culture on a serum agar slant is washed down with from 1½ to 3 c.c. of an 8 per cent. salt solution, according to the amount of growth. An active polyvalent anti-meningococcic

serum is used in the following dilutions—1-50, 1-100 and 1-300. To each .8 c.c. of the serum dilution, .2 c.c. of emulsion of the culture is added. These tubes are incubated at 55° C. overnight (16 hours), together with suitable saline controls. The majority of the strains of true meningococci will agglutinate with this serum in a dilution of 1-100 within an hour and will probably show complete agglutination in 1-200 dilution or in higher dilutions at the end of the full period of incubation. Other gram-negative cocci will either not agglutinate at all, or not in dilutions greater than 1-50. Normal horse-serum controls are of value in dealing with occasional doubtful strains. This method necessitates the isolation of the organism in pure culture on an agar slant from the original plate and means not only a delay of at least 24 hours before definite information can be obtained, but renders the examination of suspected carriers extremely laborious. In order to obviate these difficulties, Krumwiede, of the Bureau of Laboratories, Department of Health, New York City, has proposed the application of his microscopic slide agglutination method which has proved so successful in rapidly identifying typhoid and paratyphoid carriers, as follows:

On a glass slide are placed a row of small drops of a 1-10 dilution of normal horse-serum, and below this a duplicate row of drops of a 1-10 dilution of a highly potent anti-serum. The growth from a suspected colony is taken up by a small loop and rubbed first in the drop of normal serum and then in the drop of immune serum, without flaming the loop between. A sufficiently large colony should be used in order to give a slight turbidity, or else very small drops should be used. This method seems most promising for a rapid survey of suspicious colonies. The results can be read at once, as agglutination is almost instantaneous with true meningococci. If positive, confirmation can be obtained by allowing the droplet to dry and gram-staining. The finding of a gram-negative coccus showing characteristic irregularity in size and intensity of staining, leaves little doubt as to the identity of the organisms.

This advance is indeed welcomed, and if found to give reliable results will greatly facilitate the examination of suspected carriers.

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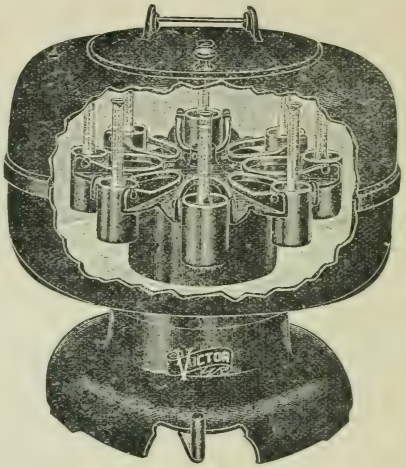

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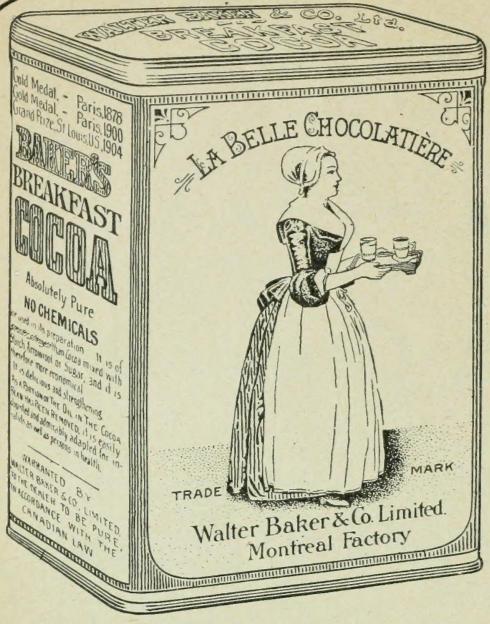

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